

**DEPARTMENT OF STATISTICS**

Following is the teaching plan of the department of Statistics for the academic session 2017-2018.

YEAR	PRE MID-TERM	POST MID-TERM
<i>First</i>	<b><u>Descriptive Statistics I</u></b> Types of statistical data, tabulation & diagrammatic representation of data, graphical representation of frequency & cumulative frequency distribution. (11)  Concepts & different measures of central tendency, dispersion, moments, skewness & kurtosis.(14)	<b><u>Descriptive Statistics II</u></b> Analysis of bivariate quantitative data (15) Analysis of multivariate quantitative data (8)
	<b><u>Probability I</u></b> Random experiments & events, classical & axiomatic definitions of probability, conditional probability, independence of events, theorems on union & intersection of events, Bayes theorem.  Random variable, pmf, pdf, cdf. Mathematical expectation, variance & moments. Joint distribution of two random variables, covariance & correlation, theorems on expectation & variance.(25)	<b><u>Probability II</u></b> Standard univariate discrete distributions & properties .(10)  Standard univariate continuous distributions & properties. Bivariate normal distribution & statement of properties.(10) Fitting of Binomial, Poisson & Normal distribution (2).  Chebychev`s inequality, weak law of large number, Statement of Central Limit Theorem. (5)
<i>Second</i>	<b><u>Sampling distributions &amp; Point Estimation</u></b> Concept of population & sample, random sampling, sampling distributions regarding Binomial, Poisson & Normal variables. $\chi^2$ , t, F distributions (excluding derivations) (13)  Concepts of unbiasedness, minimum variance, consistency & efficiency, methods of finding point estimators of a population. (12)  <b><u>Economic Statistics</u></b> Construction and uses of different types of index numbers & tests in connection with them. (12)	<b><u>Time Series Analysis</u></b> Different components of a time series, determination of trend & seasonal indices (13)  <b><u>Statistical Inference</u></b>  <b>Testing of hypotheses:</b> general concept & exact tests under normal set-up for single mean & variance, equality of two means & variances (13)  <b>Interval estimation:</b> general concept & exact confidence interval under normal set-up for single mean & variance, difference of two means & ratio of two variances (5) Large sample test & related interval estimation, Pearsonian $\chi^2$ test for goodness of fit, homogeneity & independence in contingency table (7).

	<p style="text-align: center;"><b><u>Population Statistics</u></b></p> <p>Measurement of mortality &amp; fertility, complete life table, GRR &amp; NRRR.(14)</p>	<p style="text-align: center;"><b><u>Statistical Quality Control</u></b></p> <p>Construction of control chart, single sampling inspection plan: OC, ASN, LTPD, AOQL.(11)</p>
<i>Third</i>	<p style="text-align: center;"><b><u>Sample Survey Methods</u></b></p> <p>Concepts of population and sample, Need for sampling, Stages in the design and conduct of Sample surveys. Concept of probability sampling, Random Number tables. Simple random sampling with and without replacement (8L)</p> <p style="text-align: center;"><b><u>Design &amp; Analysis of Experiments</u></b></p> <p>Analysis of Variance in one-way classified data and two-way classified data with equal number of observations in each cell. (10L)</p>	<p style="text-align: center;"><b><u>Design &amp; Analysis of Experiments</u></b></p> <p>Basic principles of design – Randomization, Replication and Local Control, Completely Randomized design (7)</p> <p>Randomized Block design and Latin Square design, applications of the technique of Analysis of Variance for the analysis of data collected under these designs. (10L)</p> <p style="text-align: center;"><b><u>Sample Survey Methods</u></b></p> <p>Stratified random sampling – associated unbiased estimators of population mean, total and proportion, their variances and unbiased variance estimators. (10)</p> <p>Linear Systematic sampling, Two-stage sampling (with primary units of equal size and equal selection probability at each stage) – unbiased estimation of population mean and total. (7L)</p>

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